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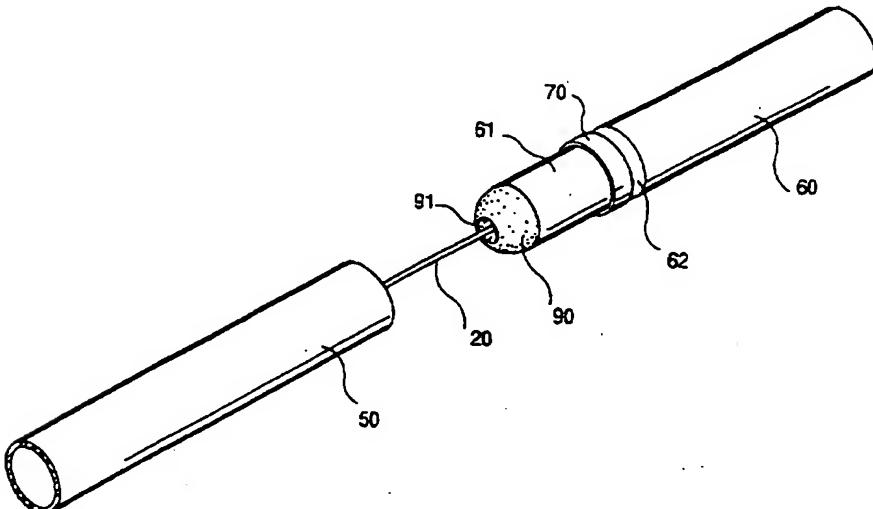
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(54) Abstract Title  
**Tent pole connection**

(57) A first tent pole (60) includes an insertion section (61) having a smaller diameter than the rest of the pole which, in use, is inserted into a second tent pole 50, and a stopper member (70) which prevents over-insertion of the pole. Preferably the first tent pole includes a resilient buffer member (90), located at the end of the insertion section, which prevents damage to the ends of the poles. The first and second poles may be joined by an elastic member (20) which passes through the centre of each of the poles.

Fig.4



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## Fig.1 Prior Art

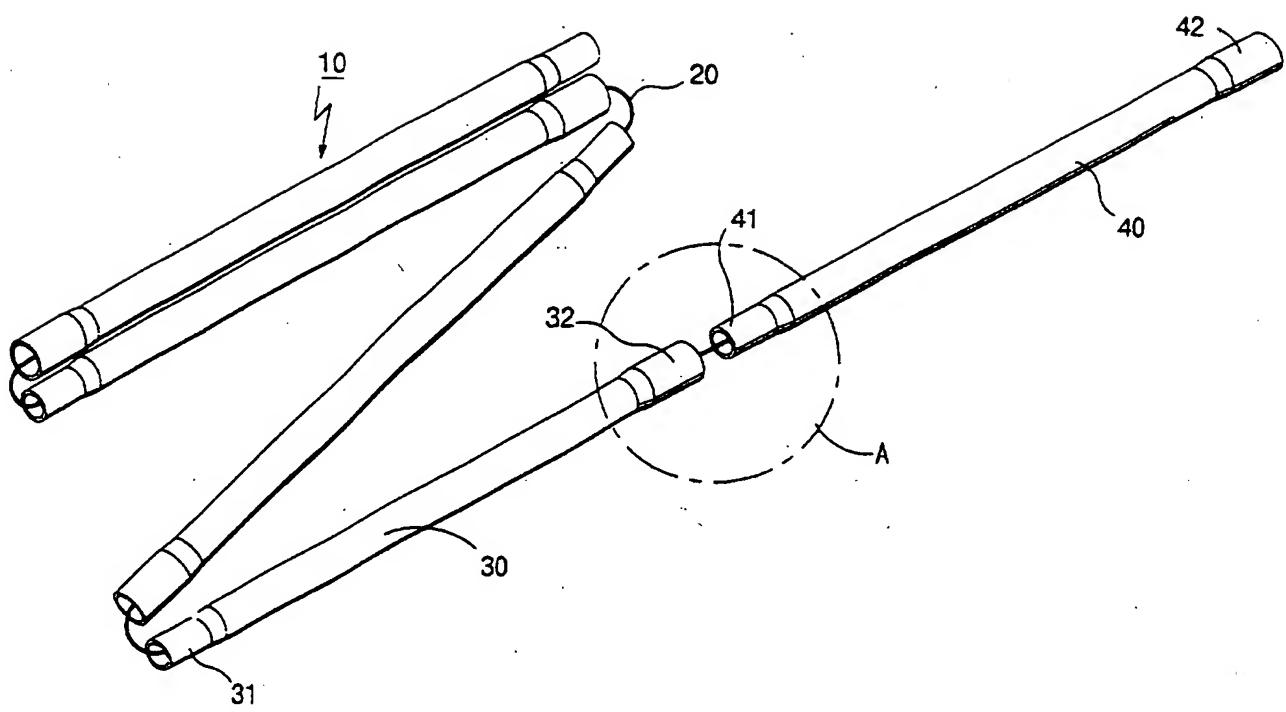


Fig.2  
Prior Art

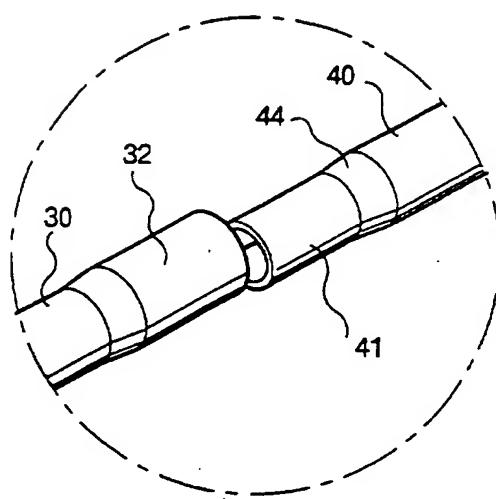


Fig.3  
Prior Art

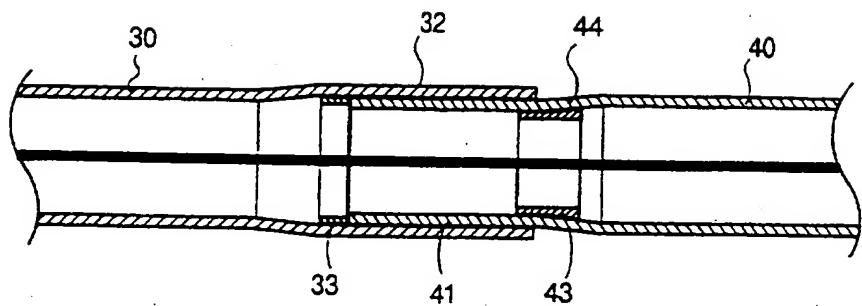


Fig.4

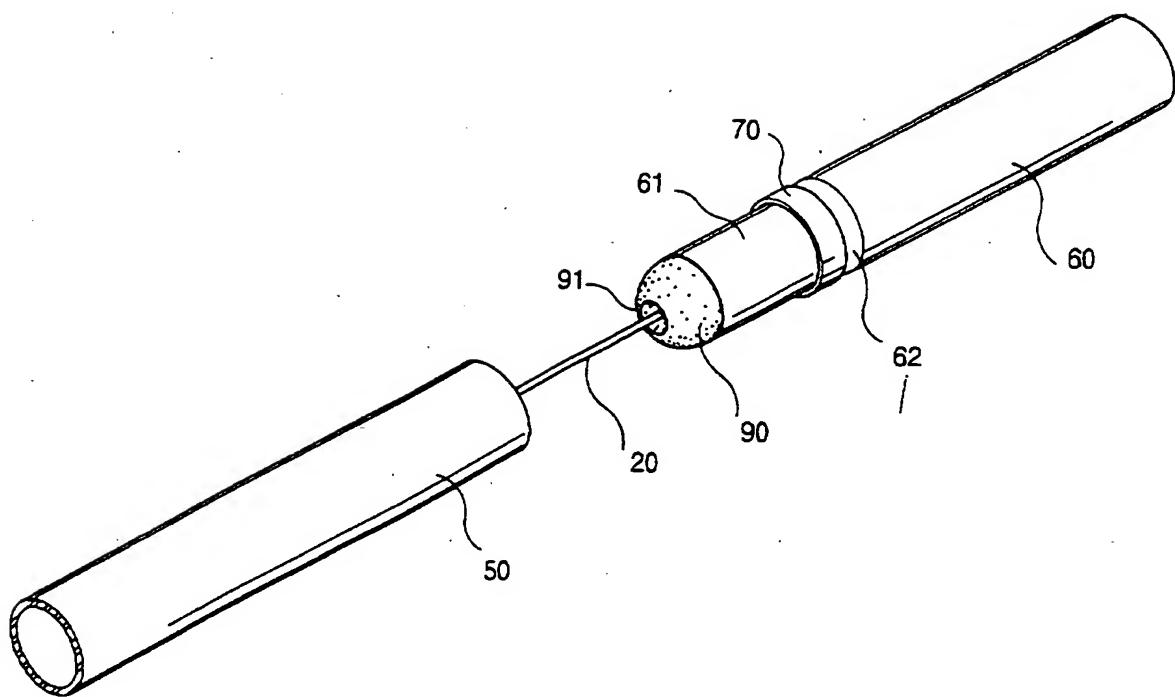


Fig.5

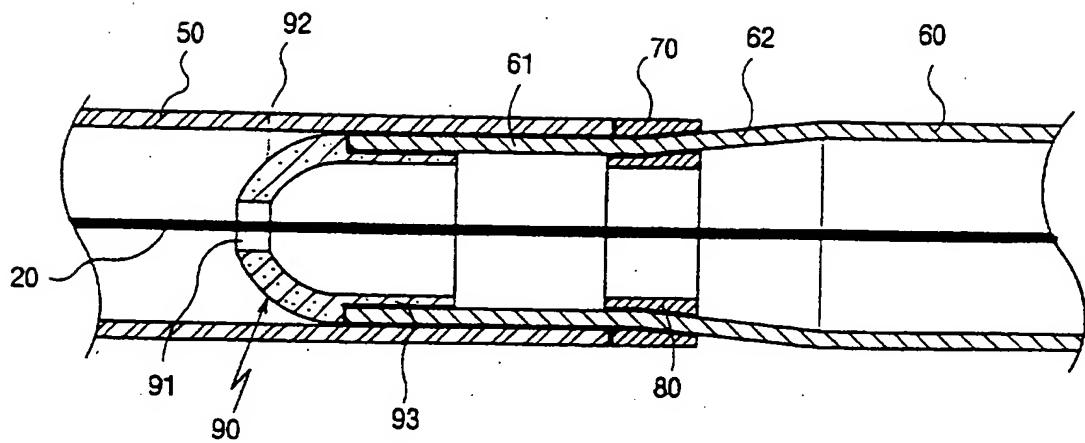


Fig. 6

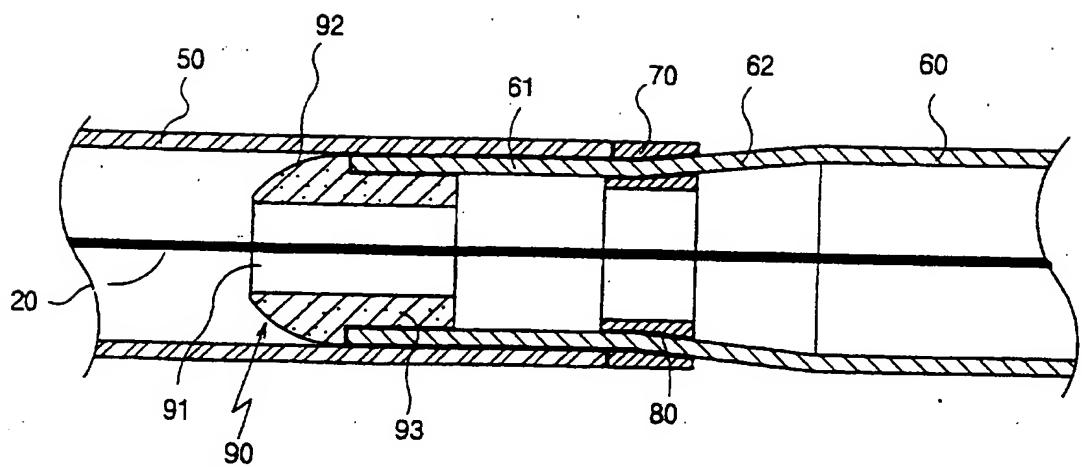


Fig.7

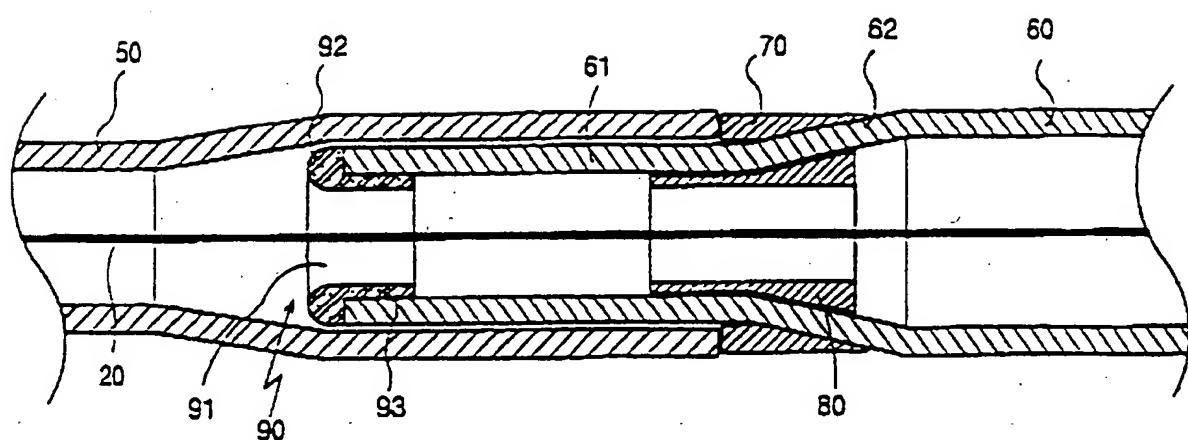


Fig.8a

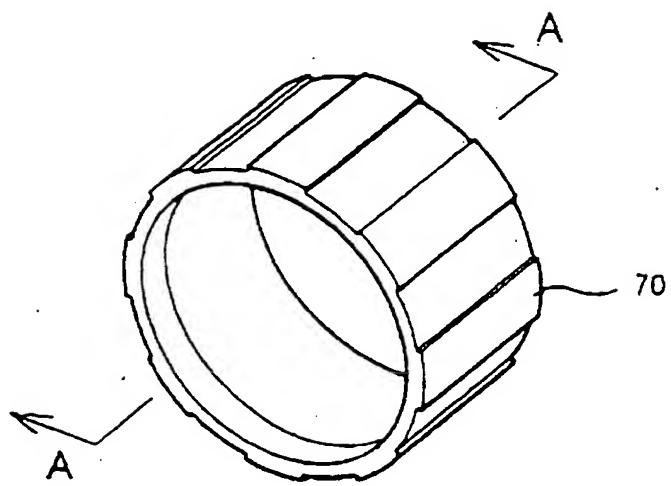
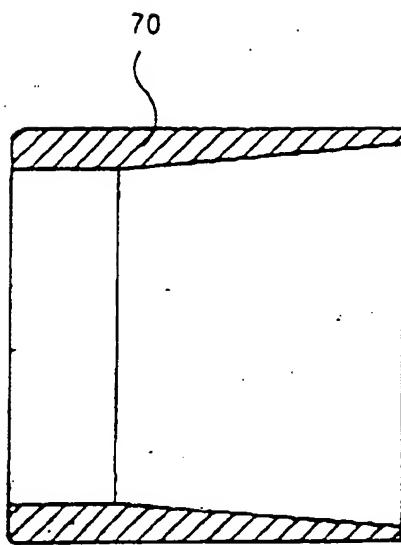


Fig.8b



## TENT POLE AND CONNECTING STRUCTURE THEREOF

## BACKGROUND OF THE INVENTION

1. Field of the Invention

5 The present invention relates to a tent pole and a connecting structure thereof, and more particularly, to a tent pole and a connecting structure thereof, which can overcome weakness of connected portions between tent poles, which form a framework of a tent, and maintain a securely connected state of the tent pole.

10 2. Description of the Related Art

In general, a tent includes a waterproof cloth and a plurality of tent poles to make users stay temporarily during camping or spending the time outdoors. The plural tent poles are assembled to each other to form a prescribed shape and the waterproof cloth is covered thereon, and thereby the tent is perfected.

15 The tent poles are a framework for forming the inside space of the tent, and are manufactured in the form of a cylindrical pipe. As shown in Fig. 1, the inside space part of the tent pole 10 is provided with a rubber band or an elastic cord 20 with an excellent elasticity. Concretely, a tent pole 40 has a shaft tube part 41 formed at an end thereof. The shaft tube part 40 has the external diameter smaller than the internal diameter of other 20 portions of the tent pole 40. Meanwhile, another tent pole 30 to be connected to the tent pole 40 has an enlarged tube part 32 formed at an end thereof to insert the shaft tube part 41 of the tent pole 40. The shaft tube part 41 of the tent pole 40 is inserted into the enlarge tube part 32 of the other tent pole 30, such that the tent poles 30 and 40 are connected to each other.

If the tent poles 30 and 40 are arranged in a line, the tent poles 30 and 40 are pulled from each other by the elasticity of the elastic cord 20, thereby connecting the tent poles 30 and 40 easily.

In the connecting structure of the tent poles, since the enlarged tube part 32 and the 5 shaft tube part 41 are thinner than other portions of the tent poles 30 and 40, the tent poles 30 and 40 may be bent and damaged. Fig. 3 is a sectional view showing a connected state of the conventional tent poles. To reinforce the enlarged tube part 32 and the shaft tube part 41, as shown in Fig. 3, a reinforced rod 43 is arranged inside a slanted part 44 of the shaft tube part 41. The reinforced rod 43 has the external form corresponding to the 10 internal shape of the slanted part 44. The reinforced rod 43 reinforces the slanted part 44 of the shaft tube part 41, thereby preventing the slanted part 44 of the shaft tube part 41 from being damaged when the tent poles are connected.

Meanwhile, the enlarged tube part 32 of the tent pole 30 to be connected to the tent pole 40 may have a stopper 33 being in the form of a ring to restrict the advance of the shaft 15 tube part 41 of the tent pole 40 inserted into the enlarged tube part 32 of the tent pole 30.

However, in the connecting structure of the tent poles shown in Fig. 3, when the tent poles 30 and 40 arranged in a line are pulled from each other by the elasticity of the elastic cord 20, the shaft tube part 41 of the tent pole 40 and the enlarged tube part 32 of the tent pole 30 collide against each other. Generally, the tent pole is made of aluminum 20 material and is thin, and thereby end portions of the tent poles may be damaged easily if colliding against each other.

#### SUMMARY OF THE INVENTION

It is, therefore, an object of the present invention to provide a tent pole and a

connecting structure thereof, which can prevent the damage of the tent pole caused by collision of a shaft tube part and an end portion of the tent pole.

To achieve the above object, the present invention provides a tent pole comprising:  
a shaft tube part of a prescribed length formed at an end portion thereof, the shaft tube part  
5 being inserted into another tent pole; and a stopper provided at the outside of a slanted part  
of the shaft tube part to restrict an inserted depth of the shaft tube part.

It is preferable that the stopper is in the form of a ring, which has a hole formed at the center.

Furthermore, the end portion of the shaft tube part has a finishing member 10 performing a buffering action to the collision against an end portion of the other tent pole to be connected to the shaft tube part when the tent poles are connected.

It is preferable that the finishing member includes an external surface having a streamlined convex portion, an insertion part inserted into the shaft tube part of the tent pole and a through hole formed at the center to pass an elastic cord passing through the inside of the tent pole.

The shaft tube part of the tent pole may have a reinforced rod mounted inside the slanted part to reinforce the slanted part, the reinforced rod having the external form corresponding to the internal form of the slanted part.

The reinforced rod includes a round part being in the form of a ring, which has the external diameter corresponding to the internal diameter of the shaft tube part, and a conical portion having a slanted surface, the conical portion having the external diameter corresponding to the slanted internal diameter of the slanted part.

Moreover, the present invention provides a connecting structure of tent poles, in which a stopper is mounted outside a slanted part of a shaft tube part, which is formed at an

end portion of the tent pole in a prescribed length, to restrict the inserted depth of the shaft tube part, and the shaft tube part is inserted into an end portion of another tent pole to connect the tent poles with each other.

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## BRIEF DESCRIPTION OF THE DRAWINGS

Further objects and advantages of the invention can be more fully understood from the following detailed description taken in conjunction with the accompanying drawings in which:

10      Fig. 1 is a perspective view of conventional tent poles;  
Fig. 2 is an enlarged view of a portion "A" of Fig. 1;  
Fig. 3 is a sectional view showing a connected state of the conventional tent poles;  
Fig. 4 is a perspective view of tent poles according to a preferred embodiment of the present invention;  
15      Fig. 5 is a sectional view showing a connected state of the tent poles of Fig. 4;  
Fig. 6 is a sectional view showing a connected state of tent poles according to another preferred embodiment of the present invention;  
20      Fig. 7 is a sectional view showing a connected state of tent poles according to another preferred embodiment of the present invention;  
Fig. 8a is a perspective view of an embodiment of a stopper; and  
Fig. 8b is a cross sectional view of the stopper of Fig. 8a taken on line  
A-A.

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## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention will now be described in detail in connection with preferred embodiments with reference to the accompanying drawings.  
30      For reference, like reference characters designate corresponding parts throughout several views.

Fig. 4 is a perspective view of a connected part of tent poles according to a preferred embodiment of the present invention, and Fig. 5 is a sectional view of the connected tent poles. As shown in the drawings, a tent pole 60 has a shaft tube part 61 of a prescribed length provided at an end portion of the tent pole 60. The shaft tube part 61 has the external diameter smaller than that of other portions of the tent pole 60. In the drawing, another tent pole 50 to be connected to the tent pole 60 does not have an enlarged tube part at an end, but the enlarged tube part, which has the internal diameter larger than the external diameter of the shaft tube part 61 of the tent pole 60, may be formed at the end portion of the tent pole 50.

In the present invention, a stopper 70 being in the form of a ring is mounted outside the shaft tube part 61 of the tent pole 60. When the shaft tube part 61 is inserted into the end portion of the tent pole 50, the end portion of the tent pole 50 can be received onto a slanted part 62 of the shaft tube part 61. If the end portion of the tent pole 50 is tightly fit onto the slanted part 62 of the shaft tube part 61, the outside of the slanted part 62 may be damaged and it may be difficult to separate the connected tent poles 50 and 60 from each other. In the present invention, when the shaft tube part 61 is inserted into the end portion of the tent pole 50 beyond a prescribed limit, as the end portion of the tent pole 50 is contacted with the stopper 70, the shaft tube part 61 is not inserted into the inside of the tent pole 50 beyond the prescribed limit. Therefore, the end portion of the tent pole 50 does not tightly fit onto the slanted part 62 of the shaft tube part 61, such that the tent poles 50 and 60 can be easily separated from each other. The internal shape of the stopper 70 corresponds to the outer shape of the shaft tube part 61 and the slanted part 62. Figure 8a shows an embodiment of the stopper 70, and Figure 8b shows a cross section thereof.

The tent pole 60 according to the present invention is provided with a terminating member 90 at the end portion of the shaft tube part 61. As shown in Fig. 5, the terminating member 90 includes an external surface 92 having a streamlined convex portion and an insertion part 93 inserted into the shaft

tube part 61 of the tent pole 60. The terminating member 90 further includes a through hole 91 formed at the center, and an elastic cord 20, which passes through the inside of the tent poles 50 and 60, passes the through hole 91. The terminating member 90 is not restricted in material, but it is preferable to be made of ductile material. Fig. 6 is a sectional view showing a connected state of the tent poles 50 and 60 having the terminating member 90, which is in a different form. Fig. 7 is a sectional view showing a connected state of the tent poles 50 and 60 having the terminating member 90, which is in another different form. In the embodiment shown in Fig. 7, the tent pole 50 to be connected to the tent pole 60 has at its end portion an enlarged tube part which has an internal diameter larger than the external diameter of the shaft tube part 61 of the tent pole 60.

Since the elastic cord 20 passes through the inside of the tent poles 50 and 60, if arranged in a line, the tent poles 50 and 60 are pulled from each other by the elasticity of the elastic cord 20. However, when the tent poles 50 and 60 are pulled from each other, the end portions of the tent poles 50 and 60 may collide against each other. The terminating member 90 provided in the end portion of the shaft tube part 61 of the tent pole 60 performs a buffering action when the end portions of the tent poles 50 and 60 collide against each other, thereby preventing the end portions of the tent poles 50 and 60 from being damaged by colliding against each other.

Moreover, since the external surface 92 of the terminating member 90 is in the form of a convex curve, if colliding against the external surface 92 of the terminating member 90, the end portion of the tent pole 50 moves along the curve of the external surface 92, and thereby the shaft tube part 61 of the tent pole 60 is smoothly inserted into the end portion of the tent pole 50. Therefore, there occurs no noise caused by the collision of the end portions when the tent poles 50 and 60 are connected.

As the elastic cord 20 passes through hole 91, the elastic cord 20 is positioned and maintained at the center when the tent poles 50 and 60 are connected, such that the tent poles 50 and 60 are easily arranged in a line.

As shown in Figs. 5 and 6, also in case of the tent pole according to the present invention, a reinforced collar 80 may be provided inside the tapered part 62 of the shaft tube part 61 to reinforce the tapered part 62. The reinforced collar 80 includes a cylindrical part being in the form of a ring, which has the external diameter corresponding to the internal diameter of the shaft tube part, and a conical portion having a slanted surface. The conical portion has the external diameter corresponding to the slanted internal diameter of the slanted part. The reinforced collar 80 is inserted into the tent pole 60 and located at the tapered part 62 of the shaft tube part 61.

The tent poles 50 and 60 according to the present invention are connected with each other by the following structure. First, the stopper 70 is mounted outside the shaft tube part 61 of the tent pole 60. The reinforced collar 80 is inserted and fixed into the shaft tube part 61. The terminating member 90 is arranged at the end portion of the shaft tube part 61 of the tent pole 60.

If arranged in a line, the tent poles 50 and 60 are pulled from each other by the elasticity of the elastic cord 20. When contacted with the terminating member 90, the end portion of the tent pole 50 is moved along the streamlined external surface 92 of the terminating member 90, and thereby the shaft tube part 61 of the tent pole 60 is inserted into the end portion of the tent pole 50 smoothly. When the shaft tube part 61 is inserted into the prescribed limit and the end portion of the tent pole 50 is contacted with the stopper 70, the movement of the tent pole 50 is stopped, and thereby the connection between the tent poles 50 and 60 is completed.

As previously described, according to the present invention, when the end portions of the tent poles 50 and 60 collide against each other, the terminating member 90 provided in the end portion of the shaft tube part 61 of the tent pole 60 performs the buffering action. Therefore, the end portions of the tent poles 50 and 60 are prevented from being damaged by directly colliding against each other.

Moreover, since the external surface 92 of the terminating member 90 is in the form of the convex curve, if colliding against the external surface 92 of the terminating member 90, the end portion of the tent pole 50 is moved along the curve of the external surface 92, and thereby the shaft tube part 61 of the tent pole 60 is inserted into the end portion of the tent pole 50 smoothly. Therefore, there is no noise caused by colliding against the end portions when the tent poles 50 and 60 are connected.

Furthermore, the reinforced collar 80 is mounted in the tapered part 62 of the shaft tube part 61 of the tent pole 60 to reinforce the tapered part 62. Therefore, even though stress is concentrated on the tapered part 62 by the external force, the tapered part 62 is protected from the damage by the reinforcing action of the reinforced collar 80. Therefore, it is guaranteed to connect the tent poles 50 and 60 securely.

Additionally, since the strength of the slanted part 62 is increased by the reinforcing action of the reinforced collar 80, the length of the shaft tube part 61 inserted into the end portion of tent pole is reduced, and thereby the weight of the tent pole can be reduced.

Especially, the stopper 70 mounted outside the shaft tube part 61 restricts the inserted depth of the shaft tube part 61, and thereby it is prevented that the end portion of the tent pole 50 is received onto the tapered part 62 of the shaft tube part 61. Therefore, the connected tent poles can be easily separated from each other and the tapered part 62 is prevented from being damaged.

While the present invention has been described with reference to the tent poles, it is not to be restricted by the tent poles but can be applied to sticks or other devices. It is to be appreciated that those skilled in the art can change or modify the embodiments without departing from the scope and spirit of the present invention.

## CLAIMS

1. A tent pole comprising:

a shaft tube part of a prescribed length formed at an end portion thereof, the shaft

5 tube part being inserted into another tent pole; and

a stopper provided at the outside of a tapered part of the shaft tube part to restrict an

inserted depth of the shaft tube part.

2. The tent pole as claimed in claim 1, wherein the end portion of the shaft tube

10 part has a finishing member performing a buffering action to the collision against an end portion of the other tent pole to be connected to the shaft tube part when the tent poles are connected.

3. The tent pole as claimed in claim 2, wherein the finishing member includes an

15 external surface having a streamlined convex portion, an insertion part inserted into the shaft tube part of the tent pole and a through hole formed at the center, the through hole through which an elastic cord, which passes the inside of the tent pole, passes.

4. The tent pole as claimed in one of claims 1 to 3, wherein the shaft tube part of

20 the tent pole has a reinforced rod mounted inside the slanted part to reinforce the slanted part, the reinforced rod having the external form corresponding to the internal form of the slanted part.

5. The tent pole as claimed in claim 4, wherein the reinforced rod includes a round

part being in the form of a ring, which has the external diameter corresponding to the internal diameter of the shaft tube part, and a conical portion having a slanted surface, the conical portion having the external diameter corresponding to the slanted internal diameter of the slanted part.

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6. A connecting structure of tent poles, wherein a stopper is mounted outside a slanted part of a shaft tube part, which is formed at an end portion of the tent pole in a prescribed length, to restrict the inserted depth of the shaft tube part, and the shaft tube part is inserted into an end portion of another tent pole to connect the tent poles with each other.

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7. The structure as claimed in claim 6, wherein the end portion of the shaft tube part has a finishing member performing a buffering action to the collision against the end portion of the tent pole to be connected with the shaft tube part when the tent poles are connected.

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8. A tubular component which has an end portion insertable into an open end of another tubular component, said end portion including a tapered part spaced from the free end thereof, a stopper being provided externally of said tapered part to restrict the insertion depth of said end portion into said open end.

9. A tubular component according to claim 8 wherein said stopper comprises a ring mounted on and encircling said tapered part.

10

10. A tent pole substantially as hereinbefore described with reference to Figures 4 and 5 of the accompanying drawings.

15

11. A tent pole substantially as hereinbefore described with reference to Figure 6 of the accompanying drawings.



Application No: GB 0031715.6  
Claims searched: 1-5, 10 and 11

Examiner: Joanne Pullen  
Date of search: 7 February 2001

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.5): E1D DTNS

Int Cl (Ed.7): E04H

Other: Online: EPODOC, WPI, JAPIO.

**Documents considered to be relevant:**

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2319724 A (MOAKES) Whole document	1 at least
X	DE 29515633 U (EVER PLAST AG) Figures and abstract.	1 at least
X	JP 7004121 A (RIKEN LIGHT METAL) Abstract and figure 1.	1 at least

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Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.